require an enormous amount of public education through cooperative efforts of planning agencies and industry. The public must be informed about the consequences of larger scale air quality degradation, traffic congestion, accidents, and higher costs of goods and services if transportation improvements are not made. On the issue of corridor investments, U.S. DOT representatives noted that the Administration's legislative proposals for surface transportation legislation contain funding for trade corridors and freight projects through regional coalitions for economic development, although privately-owned rail corridors remain ineligible for Federal funding for infrastructure improvements.

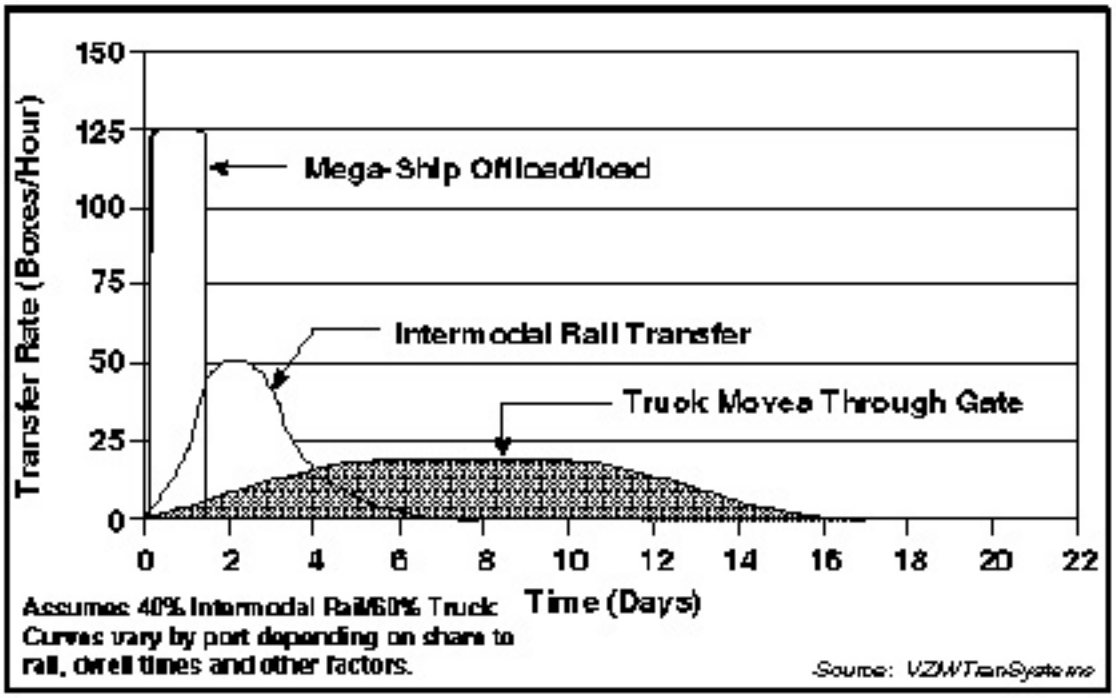
The importance of formal education programs addressing freight transportation and intermodal practices also was raised at the regional meetings. Industry representatives acknowledged that few universities have programs dealing with transportation, logistics, and freight market dynamics. Most people who currently are employed in the intermodal industry came up through the ranks. In the future, ports and the transportation entities that serve them are going to need a more structured approach in developing highly qualified people. Increased emphasis needs to be placed on logistics to teach young people how to build and operate integrated transportation systems. The work done in the freight transportation industry is typically conducted without the general public having any idea about what goes on through these operations or in these facilities, or how it affects them. During the meetings, USDOT representatives pointed out that the Department has set an education goal to inform 1 million young people about transportation and technology career opportunities.

Issue Area—*Planning*

Conference participants felt that a systems view of planning to address megaships was appropriate. Attendees felt that there are two differing planning processes that have to be resolved—State planners typically have a 5- to 10-year planning horizon, while the operating horizon of a carrier is typically of shorter range. Longer range planning is usually not shared with port service providers. Somehow these planning and operating horizon discrepancies must be reconciled.

From a planner's point of view, current and proposed legislative programs that would fund intermodal projects do not have enough money. The States are concerned that they will have less flexibility and less money for freight projects that are essential to the economy because other programs for public transit, bicycle paths, demonstration projects, and the like will dilute funding. Many States don't have matching funds to make adequate use of innovative financing techniques, such as State Infrastructure Banks, so projects get postponed for years. Furthermore, some projects are constrained because of State laws that earmark fuel tax moneys for highways and highways only. A number of participants at the regional meetings saw opportunities in expanded partnering and cooperation between ports and the military. The military has assets that are useful commercially and militarily, as do ports. Department of Defense representatives commented

Mega-Ship Terminal Peaking Characteristics



that the military's Transportation Command (TRANSCOM) has an initiative to determine if the ports would be interested in shared use of military facilities in exchange for agreements to handle the military's needs for training exercises or in times of national emergency. These participants noted that the infrastructure required to handle megaships appears to highly compliment the infrastructure for military deployment. South Atlantic ports like Charleston and Norfolk are considering the shared use of military facilities. In the Gulf region, Gulfport is looking at a partnership with the military to develop an inland intermodal facility that also would serve as a staging base.

There were a number of participants in the regional meetings that argued that the Federal Government should not be in the business of targeting national investment in areas such as port development because these facility operations respond to local and market-driven issues. Other participants noted that public/private partnerships in planning and investment are good, but they can blur the lines between the regulator and the regulated. It then becomes difficult for Federal and State agencies to regulate private sector partners because they have different roles and different goals. The private sector's goal is to profit and grow, while the public sector is concerned about ensuring the public good. Conference participants offered that Federal agencies could make a significant contribution to planning efforts by sharing success stories of public/private partnering so that they can be copied.

Issue Area—*Port Capacity*

The four regional meetings generated a significant amount of discussion about transportation system capacity, how to define it, and how to determine how much capacity was needed. In general, reducing container dwell time by one half will increase terminal capacity two-fold. Container dwell time in U.S. ports averages 6 to 8 days (in some places it is 30 days) and in rail intermodal terminals it is 1-1/2 to 2 days. Reducing dwell time can effectively increase port capacity because storage area becomes available for increased handling.

Virtually all of the meeting participants agreed that there is reserve capacity in U.S. ports, but this capacity could not be tapped under existing operating practices nor is it necessarily compatible with the capacity of supporting landside transportation networks. Further capacity enhancements would be possible through operational changes such as working on weekends, but these changes are not without their costs. The schedule under which cargo is unloaded is a guiding factor, and cargo peaking usually is factored into shipping lines' ship call strategies. The dynamics of what cargo gets priority loading is a sensitive and very politicized issue.

The issue of why lengthy dwell times occur is more complex than the simple metrics of time and speed. Some shippers dwell containers in a port because it doesn't cost them anything to store them there. Dwell times also vary from port to port as a reflection of modal splits. Ports that rely more on highway transport of containers tend to have higher dwell times, while ports with on-dock or near-dock rail service tend to have lower dwell times. If the modal splits are changed to reduce dwell time, then terminal operations to handle throughput are changed.

Moving more freight to rail increases terminal capacity. On-dock rail facilities were seen as one effective strategy for dealing with port terminals with constrained throughput because such facilities take traffic off congested city streets surrounding the port and put it onto rail. Reductions in drayage, handling costs, transit times, and on-site storage are the reasons for having rail connections to the dock. A recent Maritime Administration study found that simultaneous interchange between container ships and container trains could achieve a 30% cost savings in operating expenses.

The terminals are deploying technology to speed trucks through clearance processes. Information systems provide up-to-the-minute information using fiber optic systems and computer character reading technology to read tags on moving vehicles, and this has increased terminal throughput dramatically. The terminal operators are motivated to increase their throughput because it means they can handle more business and do so at lower costs. Efficient gate systems are crucial to overall port efficiency.

Issue Area—*Intelligent Transportation System Applications*

Comments were made at every regional meeting that applications of Intelligent Transportation Systems (ITS) technologies could help achieve greater port terminal efficiencies. Maritime industry representatives noted that recent research has shown that ports could reduce the size of their terminals by almost 30 percent if container information could be managed better. Many port officials commented that they have had integrated ITS systems for some time, but problems arise due to incompatibility between modal and customer systems using transponders and reader technologies. For example, systems utilized by trucking companies are totally different from those used by ports. Many people in the private sector felt that there will be rapid deployment of ITS once the compatibility issues are resolved.

The commercial market has technology available today that allows trucks to move from State-to-State and can track cargo electronically. Technologies allow

ITS Technologies

- Radio Frequency	- Automated equipment
* Global positioning systems	- Visual imaging
- Weight-in-motion	- Terminal operations
- Electronic data interchange	- Load planning

for tracking the intermodal movement of containers to remote distribution points. Rail data systems are rather sophisticated compared to those in the trucking industry. Several participants observed that 98 percent of all U.S. rail cars have radio identification technology (transponder tags) onboard. It was possible to incorporate this technology into equipment nationwide because the railroads have an organization (Association of American Railroads) that mandated that tags be used and supervised the transition. Speakers observed that there is no omnibus organization in the shipping industry to mandate that similar actions be undertaken for marine containers.

Some of the attendees raised the counterpoint that while virtually all railcars in the U.S. have been equipped with transponder tags, only 38 percent of the readers have been deployed. The slow rate of deployment reflects, in part, a lack of industry interest in the comprehensive monitoring of rail freight movements. An equally slow rate of Electronic Data Interchange (EDI) deployment for general intermodal container movements could be encountered because not all shippers would see the need to track all containers—especially those that contained cargoes that were of low value or not time sensitive. EDI is expensive, each shipper wants EDI information tailored to their particular operation, and a number of meeting participants doubted that shippers would pay for it. Shippers interested in EDI need to tap into carrier data bases for individualized service. EDI benefits ocean, rail, and motor carriers to control bookings, container movements, etc. allowing customers to share subsets as a by-product. It was suggested that shippers would know that if they waited until the carriers deployed the new technologies, then they can reap the benefits without making the investment. While tracking the movement of containers during international transport was seen to have certain benefits, there were fewer benefits seen in domestic users paying for this service or the cost of security measures for these systems.

Intermodal Information Technology Advances in Seamless Service

- **Wide-range radical customer service improvements are being implmented.**
- **True in-transit visibility information (RF/AEI train monitoring) will become widespread.**
- **Integration with customer logistics systems (contract logistics) is the goal and is sometimes mandated.**

Issue Area—*Data Needs*

The regional meetings generated discussion on several problems associated with current transportation data. One of these problems involved the extent to which data should be relied upon to completely and accurately capture the dynamics of the marketplace. Macro-economic numbers lack sensitivity to near-term fluctuations in the marketplace and cannot predict nuances of consumer demand and supplier response. This problem is further compounded by a frustrating lack of comprehensive, real-time information. Market analysts at the regional meetings observed that there are more current data for international trade than there are for domestic trade flows at the subregional level. These problems were encountered in making projections of future trade flows for U.S. ports using 1995 data and assuming unconstrained circumstances (i.e., ports respond to market demands with unlimited capacity, no recessions or market downturns, etc.).

Meeting participants also asked exactly how information would be used to plan for transportation investments and operations, given that these needs varied among different users. Carriers, Customs Service agents, and port operators have different information needs regarding container contents, their arrival and departure schedules, dwell times, points of pick up and delivery, etc., but there is still the challenge of developing an integrated system that can address all of these information needs. For example, how do these parties find out who filled and sealed each container? If problems arise, how can it be tracked back to the depot and get a deposition of where the box originated? Other comments noted that commercially useful data may, or may not, be useful planning data and that there are major problems in making information that shippers or carriers view as proprietary available to public agencies for planning purposes.

Meeting participants saw little movement towards the integration of divergent information systems. When considering landside and marine transportation operations, there is one set of core information that the ports use, a second set of core information that the truckers use, a third set of core information that the railroads use, a fourth set of information that each customer uses, and a fifth set that the transportation agency uses. Each user wants to choose his own subset of information from all of these sets. When this information is processed using equally unique sets of legacy hardware and software systems, it becomes almost impossible to translate this information. The

International Standards Organization has recommended EDI formats, but there has been no final agreement on standards. Recent advances in electronic commerce and doing business over the Internet hold promise for the future.

Issue Area—*Labor*

Participants at all of the regional meetings commented that while technological advances may offer the potential to increase capacity, the ability to use this technology may be compromised. More specifically, labor and management may be unable to agree on deploying certain technologies. In many other countries, management can simply elect to employ time and labor saving technologies. In the U.S., negotiations between labor and management often must take place first before the technology can be deployed. Industry representatives observed that technology deployment requires consideration of labor, its costs, and the availability of skilled labor. Attendees noted that new information systems may provide opportunities for increasing efficiency, but they simply couldn't throw technology at problems without considering the implications for labor. To be competitive, industry must find the balance between labor and technology.

For example, applications of advanced Global Positioning System, on-board mapping, and electronic driver logs are placing increasing demands on truck drivers to the point where they need special training beyond that needed to simply operate a truck. And these technological innovations are being introduced at a time when the motor carrier industry is short of skilled drivers. But such improvements are necessary in light of responses to surveys of commercial motor vehicle operators that routinely find that waiting in lines at intermodal terminals is a major complaint of drivers; since many drivers are paid on a per-trip basis, drivers want to drive—not wait in line. Technology deployments all share the common goal of reducing paperwork, but require educational programs to be effective.

Attendees at the regional meetings observed that unions are very sensitive to automated handling of cargo, and automation dictates a number of changes. Some work rules are ancient and contracts have to be negotiated that reflect current technology in the marketplace. Many ports are trying to eliminate double handling by eliminating the point of rest in transferring cargo between modes. Ports also are looking into combining "local" locals so contractual discussions and work rules are less fragmented.

Port representatives identified the operational conflicts that result when carriers request that their ships be worked around the clock when they are at berth, but ports can't keep their gates open around the clock. Those attending the regional meetings said that a change in the thinking of union leaders would be required if the unions are going to change their ways of doing business, just as the ports are doing. Meeting participants observed that unions need to be aware that some labor rules could cost the ports and their workers business that will be lost to foreign ports.

The port representatives noted that their business would change dramatically if steamship lines begin to operate seven days a week. Today ports have weekly or biweekly vessel calls—if this situation changes to daily ship calls, ports may have to ask carriers to redeploy or adjust their ship calls. Ports have hundreds of millions of dollars in assets in their facilities, but can use them only certain hours of the day, and are forced to expand capacity because their productivity is so low. Ship activities go on around the clock, but landside activities are limited due to labor contracts and the high cost of overtime pay. Port officials saw some risk in entering into labor contracts with provisions for expanded hours of operation on the chance that shippers will pay more for around the clock service. In the opinion of these officials, the shippers currently seem to be getting the level of service they want to pay for.

From labor's perspective, there was general consensus at the four regional meetings that changes in how ships are loaded and how containers are processed will require new working relationships between Federal officials, port management, labor, and the motor carrier and rail industries. New solutions and work regulations cannot be top-down decisions, but will require participation and input from all parties involved in the decision, including labor. The union representatives also endorsed the views of local officials and port managers that transportation management practices must become more efficient if port facilities and other components of the transportation system are to be able to meet demands of increased freight flows.

Union representatives said that the new technologies and rapid cargo handling needed to service larger ships will require new and more advanced skill sets among dockside workers. Increasingly, these specialized dockside jobs will require the "right" person to be found for the task (such as crane operators), which raises the issue of where will these workers be found and who will train them. Adequate preparation and deployment of these workers becomes a critical issue to a port ramping up for megaship service. While new operating strategies will move greater volumes of containers, labor representatives cautioned that worker safety could not be compromised.

Issue Area—*Regulations*

Meeting participants pointed out that intermodal choke points are not just technological, institutional, or operational—there are also regulatory impediments. Participants observed that the same amount of effort

needs to go into capturing efficiencies through streamlining and simplifying the regulatory process as through technological and institutional/operational improvements. Unless some regulatory impediments were resolved, those attending the regional meetings felt that no major efficiencies will be gained in intermodal transport no matter how many improvements are made in other areas. Regulatory changes may have to parallel the need for facility development in response to market demands.

Transportation officials also saw impediments in complex regulations for making improvements to landside connections to ports. Under provisions of the Intermodal Surface Transportation Efficiency Act of 1991—and prior to the National Highway System Designation Act of 1995 (NHSDA), U.S. ports accessed funds through the Congestion Mitigation/Air Quality (CMAQ) program. A large number of ports are not in non-attainment areas for air quality conformity, which makes them ineligible to receive CMAQ funds. Meeting attendees were frustrated by the disconnect between transportation policy statements that endorsed the need for intermodal infrastructure investment that would facilitate freight movements and the lack of funding authority and regulatory streamlining that make such investments difficult.

It should be noted that the NHSDA identified 240 marine terminal connectors to the National Highway System. This total includes the designation of 104 marine terminal connectors named in the Act and an additional 136 connectors identified in the comprehensive 1996 report submitted to Congress by the Department, entitled "Pulling Together: The National Highway System and its Connections to Major Intermodal Terminals." While status as a designated connector does not guarantee funding, it does provide opportunities for accessing Federal-aid funds.

Perhaps the most daunting regulatory hurdles—and ones that were raised at each of the regional meetings—were the regulations pertaining to dredging. Doing the required environmental analyses and planning for a dredging permit request can sometimes be a very lengthy process in the United States, and conference attendees urged that ways be found to speed up the process. These regulations and testing requirements have their basis in environmental protection standards established in law by the Congress of the United States, specifically in Section 404 of the Clean Water Act of 1972 and Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972, as amended.

Port representatives believed that the process for securing dredging permits was mired in issues of political influence and appropriations. The participants felt that when politics are introduced and market realities are ignored, the evaluation system breaks down and worthwhile investments are impeded. Comments noted that the Army Corps of Engineers goes through an extensive feasibility study before acting on permit requests, and this can take a considerable period of time when complex issues are involved. When transportation officials hear about developments like the coming of megaships, a considerable amount of time is required to do the necessary planning and secure the requisite permits before improvements like dredging can be made. Even after the Corps develops its information, meeting attendees felt that the political debate fails to give it adequate consideration in the decision making process. The Corps has pointed out, however, that in Fiscal Year 1997 the Corps completed about 80 percent of individual permit actions within 120 days and, when both individual and general permit actions are considered, over 90 percent of these actions were completed within 60 days.

In addressing issues related to dredging, it is important to note the distinctions between the two basic Federal dredging programs managed by the Corps: (1) new construction (i.e., the dredging of a deeper channel depth for a project), and (2) maintenance dredging (dredging to maintain existing project depths, including emergency dredging) and the regulation of non-Federal dredging activities, such as berthing areas and non-Federal channels. Projects within these programs are evaluated and authorized (or approved) under different procedures, and the Federal programs are funded from separate appropriations accounts. These distinctions, and the recent progress made by Federal agencies in cooperating with various dredging stakeholders, will be critical elements in future discussions of dredging issues.

One of the regulatory impediments cited during the regional meetings was the Jones Act. The Jones Act requires that vessels moving cargo between two U.S. points be U.S. built, flagged, and crewed. Cargo transported by water between two Canadian ports must also go on a Canadian-flagged ship. Respondents also felt that tax levied against cargo handled by U.S. ports served to divert freight to Canada, which does not have a Harbor Maintenance Tax. They believed that the market will find inefficiencies wherever they exist and find ways to avoid them.

Representatives from the USDOT's Maritime Administration have met with various public and private stakeholders to discuss and identify the potential causes of cargo being diverted from U.S. ports to nearby Canadian ports. Aside from normal marketplace decisions, concerns mentioned focused on dredging and the impact of the Harbor Maintenance Tax. (The Jones Act was never raised as a possible cause of cargo being diverted to Canadian ports, although it was cited as a possible incentive in the development of a potential Caribbean megaport to feed U.S. ports.)

Perspectives of Key Players

The regional meetings on the potential impacts of megaships attracted a full spectrum of transportation professionals. Those in attendance included representatives from steamship lines, port authorities, marine terminals, railroads, trucking companies, metropolitan planning organizations, organized labor, state DOT's, local transportation agencies, and the Federal Government (U.S. DOT, EPA, U.S. Customs Service, Department of the Army [including Corps of Engineers], and Department of the Navy). While all of these parties play a vital role in the international movement of freight, discussions during the regional meetings tended to focus on the activities and perspectives of five of these entities: the ports, the steamship lines, the military (Department of Defense, excluding the Corps of Engineers), the Class I railroads, and the Corps of Engineers. This section presents the comments of the meeting participants on the perceived roles of these five "key players."

Port Perspective

United States ports are governed by a variety of public entities (State, bi-State, or local government agencies), but they operate more like private sector businesses. While many public ports are striving to become financially self-sufficient, most receive some form of assistance from their governing body because of the economic benefits and jobs derived by the local and regional community from port activity. Although individual ports are aggressively seeking new business opportunities, many ports recognize the need for regional cooperation and partnerships with other elements of the distribution chain because shipper routing decisions are based on their total needs—both cost and service.

As public entities that are held accountable for their performance, port representatives recognized that they needed to do a better job of supplying the information that government officials need to make the transportation investments that are so critical to ports. Every port reports to a higher governing authority and that authority must understand the significance of the jobs that are tied to the port's operations. Port representatives pointed out that if they did not accurately anticipate market developments and made the wrong decision on a major investment, the mistake could impede the port's development for 20 years or more. A major port could be relegated to minor port status due to bad decisions.

Ports representatives acknowledged the danger in thinking that if megaships are constructed they must automatically add infrastructure capacity to their port. Ports urged caution in investment in megaship infrastructure, especially for those ports that were likely to be feeder ports. Carriers were seen as being likely to narrow their choices to only two or three ports on each U.S. coast. On the question of whether carriers would be likely to share in the cost of infrastructure investments occasioned by their vessels, port officials noted that carriers have not paid their full share of port infrastructure improvements to date, nor do ship owners typically consult with ports on long range planning for port infrastructure.

Attendees at the regional meetings were very interested in financing mechanisms that could assist ports in making the infrastructure investments required by changes in ship design. Participants believed that Federal measures to provide credit enhancement could entail measures such as grant set-asides that improve a port's credit rating. These credit enhancements were viewed as particularly useful for large projects that have port- related project consequences beyond a State's limits.

Steamship Line Perspective

In an era of increased competition, fewer financial resources, new environmental regulations, heightened safety awareness and a constrained infrastructure, carriers and shippers are turning to new strategies to meet marketplace demands. Carriers are under tremendous pressure to differentiate their services to make them more competitive against their rivals. Restructuring services and targeting new markets have created an environment of constant change for many port/terminal relationships. Carriers have plans on service vessel deployment strategies and routes, but for obvious reasons of competitive advantage they don't make these plans public. The carriers find it to be to their advantage to play ports against one another on the expectation that ports will give the shipping companies favorable deals and build facilities to develop emerging markets.

The carrier industry is consolidating and alliances are being formed at an accelerating rate. Consolidation of liner companies and a reduction in the number of carriers have boosted the size and geographic reach of the remaining companies. Consolidations and alliances have produced economies of scale that individual firms can not reach on their own. These economies have helped save hundreds of millions of dollars through consolidations of staffs, terminals, facilities, and services. This situation has forced smaller shipping companies into niche markets and forced some ports out of the running to serve these larger entities.

This in turn has provided increased leverage for the consolidated companies or alliances to negotiate with those ports that can handle and compete for the traffic. As a result, some ports will loose carrier business until they can gain other customers.

Military Perspective

In Desert Shield and Desert Storm, the military experienced problems in tracking and identifying containerized and noncontainerized equipment and supplies that had been deployed. It is estimated that during Desert Storm, between 20,000 and 25,000 containers arrived and had to be opened to determine their contents. The military has realized that if it can gain better control of tracking containers, it can better control its overall logistics. Some participants in the regional meetings observed that the military brought many of the problems upon itself by declining the offer of shipping companies to use their landside management/in-transit visibility technology that had already been developed for tracking containers and their contents. Generally, military documentation on government bills of lading and tracking systems are not compatible with commercial systems.

After Desert Shield and Desert Storm, it became apparent that the military had a serious logistics problem in monitoring the transport of cargo. The challenge facing the military is to push the maximum amount of material through the transportation pipeline in the shortest amount of time. During Desert Shield and Desert Storm, the military's greatest domestic constraint was rail access at U.S. ports. The military experienced load center congestion, and a lack of staging area for equipment such as tanks and trucks. Some ports were found to lack the space that the military needed to stage its equipment. The military has the same pressures as commercial interests do, where time is of the essence and there are enormous amounts of money tied up in transporting goods.

The military has examined its logistical needs for cargo tracking and has determined that it requires a read/ write standard for transponder tags as opposed to a read-only standard. The military wants to rely on moving its freight via public and private carriers, but shares the view of the intermodal industry that there needs to be greater integration in the information system.

The Department of Defense is interested in getting one military-visible system that is able to communicate to all commercial logistics tracking systems. The military is only 5 percent of most U.S. flag carriers' business and represents a minority share on most market routes. There presently are no plans to construct U.S. flag carrier megaships. Therefore, the market ultimately may drive tagging and tracking technologies in directions counter to those that the military would prefer. Such a development would have the unfortunate outcome of separate and therefore costly investments in tagging and tracking to serve the individual needs of the military and the private sector.

The Military Traffic Management Command (MTMC) is responsible for moving forces through ports under different activation scenarios. At the national level, there is a Memorandum of Understanding (MOU) on Port Readiness that establishes the National Port Readiness Network. This organization provides coordination and cooperation to ensure readiness of commercial ports to support deployments. At each strategic defense port, representatives of the MOU signatory agencies establish local port readiness committees (PRCs). The PRCs work closely with the ports to ensure preparedness and assist during deployments. On a semi-annual basis, the

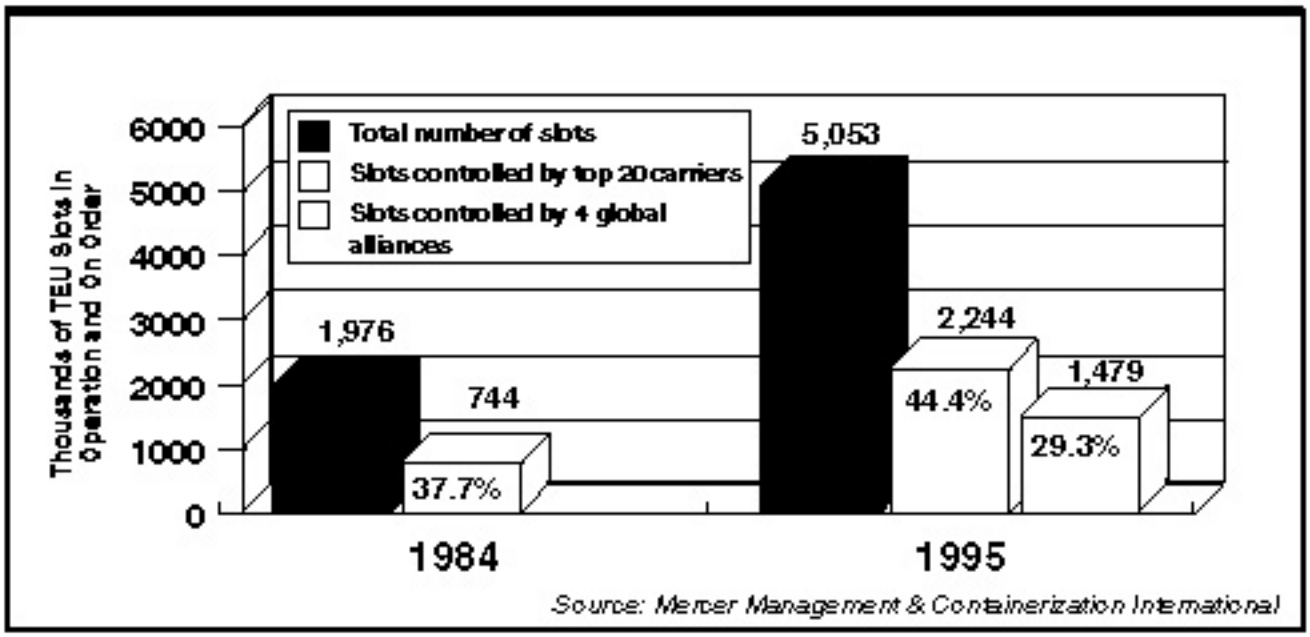
Characteristics of the Mega-Ship Terminal

Acres	150
Berths	2 @ 1,250' for Mega-Ships 3 @ 1,000' for Mixed Vessel Sizes
Cranes	6-10 Beyond Post-Panamax Cranes
Water	50' Channel/Berth Depth; 800' to 1,000' Channel Width; 1,480' to 1,650' Turning Basin
Projected Yearly Throughput*	450,000 TEUs/Yr. Minimum (3,000 TEUs/Acre) 900,000 TEUs/Yr. Maximum (6,000 TEUs/Acre)
Rail Connections	On-Dock or Adjacent Intermodal Railyard, 2-4 Unit Train Calls/Day (40% Intermodal Split)
Truck Traffic, Typical Day	1,730 to 3,460 Trips/Day (40% Intermodal Split) 2,880 to 5,770 Trips/Day (0% Intermodal Split)

* Through the gate – excludes possible transshipment.

Source: VZM/TranSystems

Industry Concentration Has Increased Dramatically, and Will Continue



Source: Mercer Management & Containerization International

Maritime Administration and MTMC visit the strategic defense ports to assess port readiness.

During a deployment, the military may require staging area and berths at the strategic defense ports. The military typically plans for appropriate staging area and berth space to accommodate the simultaneous loading of three vessels. These requirements may reduce a port's ability to meet commercial cargo requirements and cause commercial disruption. The military relies heavily on the ports for a robust and responsive system to meet deployment requirements. The strategic network of highways, rails and ports must be able to accommodate the deployment surge.

The Department of Defense (DOD) representatives observed that calls to U.S. ports by megaships may provide benefits to the military: these megaships will require expanded port capacity and will require capacity improvements to highways and rail lines. Port representatives at the regional meetings pointed to the vital role that they play in national defense as justification for DOD and other Federal assistance in improving transportation access to their facilities. Specifically, the ports saw the need for Federal investments in unobstructed rail access, such as making grade crossing improvements and eliminating conflicts between freight and passenger movements. Meeting participants noted that as more capacity is squeezed out of facilities such as ports, highways, and railroads, this infrastructure has more limited ability to respond to surges on demand such as those caused by seasonal peaks, natural disasters, or emergency responses.

Recent public/private partnerships in the maritime sector have allowed DOT to assist DOD in their contingency shipping needs. The Voluntary Intermodal Shipping Agreement (VISA) is the mechanism under which carriers provide origin-to-destination transportation during military contingency. The companies in VISA offer their sophisticated systems of in-transit visibility and worldwide intermodal networks for DOD use. In addition, the Maritime Security Program (MSP) provide an active privately owned U.S.-flag and U.S.-crewed merchant fleet for sealift sustainment use. This 10 year program expands the sphere of participation to a wide spectrum of companies that operate in worldwide trades. This diverse mix of ships and services gives DOD the ability to fill gaps in surge capability.

Railroad Perspective

Many people at the regional meetings stated that the recent round of rail consolidations and mergers will allow routing efficiencies for carriers and shippers, and as railroads consolidate, it may lead to new hubs for megaships. If a few truly transcontinental railroads will result from these consolidations and mergers, the coastal terminals would become likely candidates for megaship calls or feeder port status. Attention should not be exclusively on direct access by transcontinental railroads, since there will still be the need to have short haul trains to the feeder ports that will serve hub ports.

The recent round of mergers has involved considerable expense for the railroads. Some participants at the meetings questioned whether the railroads are likely to have funds available in the near term to make large scale investments to accommodate port calls by megaships. Other participants argued that the opposite was true—the railroads have to grow their traffic to pay their bills. Under the latter scenario, the railroads will have to be more aggressive about seeking business, including any increased intermodal traffic that might be generated by the arrival of megaships. The intermodal freight sector is an aggressive and growing market for railroads today.

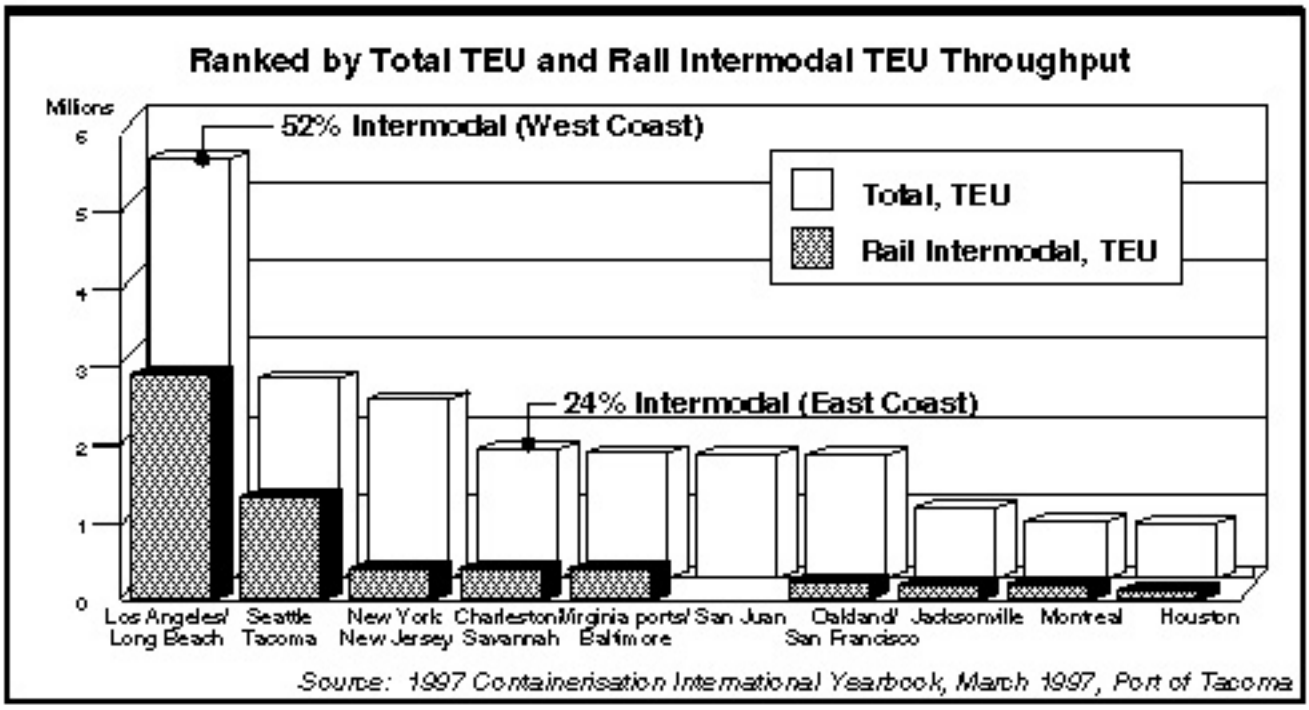
Border issues and international competition for freight transport will become more complex as railroads become more consolidated. For example, port industry representatives pointed out that the Canadian National and Canadian Pacific Railroads invest in ondock rail, and this type of thinking doesn't come from U.S. rail concerns. The rail industry has estimated that as many as 350,000 containers a year destined for Montreal and Halifax could be diverted to U.S. carriers. Port representatives characterized the U.S. railroad industry's perspective as "deliver freight to the rail terminal or build the rail connections from the dock and then call us." In terms of overall business, the railroads make more money hauling coal and grain, and make comparatively less from intermodal moves off the dock. Attendees noted that the BNSF Railroad has always been aggressive and future-oriented in developing intermodal service, and their investments and operating practices will have a big impact elsewhere in the industry.

Railroads were characterized as having an obvious interest in terminal issues and how megaship calls will affect their terminals. Increases in intermodal rail freight lead to longer and more frequent trains on rail lines, and communities along these lines are objecting to the increased train traffic through their neighborhoods. While Federal rail transportation policies need to address community quality of life concerns and mitigating negative impacts of train operations, railroad representatives said that these policies must also address donor and donee questions. Railroads pay 5.55 cents per gallon of diesel fuel and would like their taxes spent on rail investments rather than go towards deficit reduction as part of the General Fund.

Corps of Engineers Perspective

The Corps of Engineers (Corps) is part of the United States Army and has a major role in water resources

1997 Top North American Container Gateways



policy by sharing responsibility with ports for constructing and maintaining channels, jetties, turning basins and other general navigation features. Congress grants the Corps authority for maritime and navigation channel improvements through water resource development acts. The Corps doesn't initiate projects independently, but responds to the directive of the Administration and Congress responding to the requests of States and local communities. In addition to commercial navigation, the other priority water resources missions of the Corps are flood damage reduction and the restoration and protection of environmental resources.

The Corps evaluates water resources projects using the "Principles and Guidelines for Water and Related Land Resources Implementation Studies" which were established by Executive Order in March 1983. The Principles and Guidelines provide a consistent analytic framework for evaluating the economic efficiency of alternative plans for water resource development. Plans are compared on the basis of "willingness-to-pay", which reflects the market realities of our economy. Under the Principles and Guidelines, plans for navigation improvement are recommended for implementation if they reasonably maximize net national economic development benefits and are consistent with protecting the Nation's environment.

Funds for navigation projects are appropriated through Energy and Water Development Appropriations Acts. The Corps attempts to balance several high priority interests and objectives in its budget recommendation: investment in water resource infrastructure development is balanced with investment in watershed and other environmental restoration, and maintenance/rehabilitation of existing projects is balanced with construction of new water resources development projects. Given the Corps' budget objectives and the realities of budgetary constraints, it will be a challenge to continue to operate and maintain the existing harbor infrastructure while meeting the needs for new navigation investment in channel deepening and widening necessitated by the new megaships.

The Corps, however, is committed to continue to make the navigation investments necessary to keep the United States competitive in world trade. This does not mean that every port must have the capability to accommodate fully loaded megaships. The Corps remains committed to working with the Administration and the Congress to meet navigation needs such as deepening and widening of navigation channels to accommodate megaships when these needs can be justified on the basis of national economic development benefits exceeding the costs and there is a willing and capable non-Federal partner.